

Quiz 4 for Mathematics 223
Introductory Analysis I - Fall 2000
Material Covered: Section 3.4 of workbook and text
For: Friday, 20th October

This is a 15 minute quiz, worth 5% and marked out of 5 points.

Name (please print): _____ . ID Number: _____
last first

1. [1] Determine the following limits.

(a) $\lim_{x \rightarrow \infty} \frac{6x^2 - x + 1}{4x^4 - 3x^3 + 5x} =$ _____

(a) $\lim_{x \rightarrow \infty} \frac{6x^4 + 2x^3 + 1}{-4x^4 + 5} =$ _____

2. [1] The function $f(x) = \frac{3x^3 + 2}{x^3 - 2x^2 + 4}$ has (a) horizontal asymptote(s) at (circle none, one or more) $x = 2 / x = 3 / y = 2 / y = 3 / y = 4 /$

3. [1] Determine the following limits.

(a) $\lim_{x \rightarrow 4^-} \frac{x^2 + 2x - 1}{(x-4)(x+3)} =$ _____

(a) $\lim_{x \rightarrow 2^+} \frac{x+5}{x^2 - 5x + 6} =$ _____

4. The function $f(x) = \frac{1}{x^2 - 3x - 10}$ has (a) vertical asymptote(s) at (circle none, one or more) $x = -2 / x = -3 / x = 4 / x = 5 / y = 2 / y = 2$

5. The function $f(x) = (3x + 5) - \frac{7}{2x-1}$ has (a) oblique asymptote(s) at (circle none, one or more)

$x = 3x + 5 / y = 2x - 1 / y = 7 / y = \frac{7}{2x-1} / y = (3x + 5)$

(1) $0, -\frac{6}{4} = -\frac{3}{2}$

(2) $y = 3$

(3) $-\infty$ (from calculator); ∞ (notice $\frac{x+5}{x^2-5x+6} = \frac{x+5}{(x-3)(x-2)}$)

(4) $x = -2, x = 5$ (notice $\frac{1}{x^2-3x-10} = \frac{1}{(x-5)(x+2)}$)

(5) $y = 3x + 5$